

**MEMORANDUM****MONTGOMERY WATSON**

2100 Corporate Drive  
Addison, IL  
Tel: (708) 691-5020  
Fax: (708) 691-5133

**FAX TO:** Sheri Bianchin (312) 886-4071  
James Chapman (312) 353-9281  
Holly Grejda (317) 308-3116/3063  
Steve Mrkvika (312) 346-4781

**Date:** May 20, 1996

**cc:** Ron Frchner (612) 639-0923

**From:** Peter Vagt *PV*

**Subject:** Revised Sampling Plan Text for Wetland Sampling  
ACS NPL Site RD/RA Pre-Design Investigation

US EPA RECORDS CENTER REGION 5



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On Friday, I faxed to you a copy of Figure 4-5 for the Pre-Design Work Plan (Figure 7 for the FSP), showing the sediment and surface water sampling locations we marked during our visit to the site on May 14, 1996.

With this Fax, I am sending you copies of the modified pages of text and tables from the Pre-Design Work Plan and Field Sampling Plan. Also included is the spreadsheet that shows the correlation between sediment sampling locations and surface water sampling locations.

As agreed last week, we will begin the sampling at the site at 7 AM, Tuesday, May 21, 1996. At the end of the sampling day, we will schedule any remaining sampling for Wednesday, May 22. We will bring extra copies of Figure 4-5 to the site for distribution to the U.S. EPA and its representatives.

Please call if you have any questions or comments.

PJV

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Revised: 20-May-96

Cross-reference of Surface Water and Sediment Sampling Locations  
ACS NPL Site RD/RA Pre-Design Wetland Investigation


<u>SW</u>	<u>SD</u>	<u>Location</u>
9	38	Groundwater/benzene seep area
10		North ditch
11		Ditch to west
12		Ditch to west
13		Near ditch to west
14		Ditch to north - Upstream of site
15	37	Drainage ditch along north side
16	36	Near extraction trench
17	17	Near rail by LF dewatering
18	18	South gw discharge structure
19	19	West gw discharge outlet
20	<del>20-35</del>	Northwest gw discharge outlet
	<del>35-20</del>	300 feet west of ACS
		21 200 feet west of ACS
		22 At beginning of drainage ditch away from ACS
		23 ACS fence line
		24 200 feet NW of ACS
		25 150 feet NW of ACS
		26 200 feet NW of ACS
		27 200 feet north of ACS
		28 along north fence line
		29 along north fence line
		30 along north fence line
		31 400 feet west of ACS
		32 North of dewatering
		33 600 feet west of ACS
		34 500 feet west of ACS
12	22	Total Number

change made  
day of sampling

## Revise Text from Pre-Design Work Plan

The surface water and sediment sample parameters for this investigation were selected based upon the U.S. EPA finding that a specific constituent may pose a risk to wetland or aquatic species, and if the constituent was actually detected in groundwater, surface water or sediment samples near the wetlands. Based upon this approach, surface water samples will be analyzed for VOCs, SVOCs, PCBs, zinc, cadmium, lead, iron, mercury, and cyanide (Table 4-2).

Using the above described approach, sediment samples would be analyzed for SVOCs, heptachlor epoxide, PCBs, arsenic, cadmium, chromium, copper, lead, mercury, and zinc, however, heptachlor epoxide was not detected in the RI wetlands sediment samples (SD03, SD04, SD11, SD12, and SD16) and therefore heptachlor epoxide will not be included in the parameter list. VOCs will be added to the parameter list because some of the samples will be collected in areas not previously studied (i.e., north of the On-Site Containment Area), and VOCs are a common contaminant at the ACS site. Therefore, the sediment sample parameter list will include VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, copper, lead, mercury and zinc (Table 4-2).



Recently, Mr. James Tarpo of ACS indicated to Mr. William Bolen of the U.S. EPA that historically, there had been direct runoff to the north of the On-Site Containment Area, and so three soil/sediment sample locations are proposed to determine the presence or absence of impacts in this area (SD28, SD29, and SD30) (Figure 4-5). Other areas of potential runoff from the ACS plant site will also be sampled further including the near vicinity of RI samples SD3, (SD21, SD22, and SD23), SD4 (SD20), SD11 (SD26 and SD27), SD12 (SD24 and SD25) and SD16 (SD31, SD33, and SD34). Proposed sample locations SD17 and SD32 will be collected near the RI sample SD7C. Three sediment samples (SD18, SD19, and SD35) will be collected at the proposed location of the groundwater treatment effluent discharge diffusers (Figure 4-5). Two proposed samples (SD36 and SD37) will be collected in the marsh area northwest of the proposed sample locations of SD24 and SD25, due to groundwater contamination found during the upper aquifer investigation. Proposed sample locations are based upon topography, surface water routing, and past sampling results. Sediment sample SD38 will be collected near the surface water seep sample and found to contain benzene during the upper aquifer investigation. The proposed sample locations, SD17 through SD38 are shown on Figure 4-5. One sample will be collected from the top six inches of soil/sediment at each location and submitted for laboratory analysis. The samples will be analyzed for VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, copper, lead, mercury, and zinc at Level IV DQO using the CLP Statement of Work according to the QAPP and FSP (Table 4-2).

Surface water samples will be collected from the drainage ditch that runs on the north and west of the wetlands and a tributary (Figure 4-5). One surface water sample will be collected at an upstream location SW14 and six in downstream locations (SW9, SW15, SW10, SW11, SW12, and SW13) and from pooled water within the wetlands (i.e., the tributary). The upstream sample locations will provide an indication of the quality of the surface water entering the ditch from offsite. SW9 will be collected to confirm the results of the surface water seep sample collected during the upper aquifer investigation. (Sediment sample SD38 will also be collected at this location.) Other surface water samples from the ditch will provide an indication of the

quality of the groundwater discharging to the wetlands, although such samples will also include potential effects from upstream influences and groundwater discharge from areas on the opposite side of the ditch from ACS. Samples will also be collected from standing water in the wetlands, if possible. Water samples of standing water in the wetlands would provide the best data to evaluate the potential impacts of groundwater discharge to the wetlands, and up to three such samples may be substituted for downstream ditch samples as conditions permit. Surface water samples will be analyzed for VOCs, SVOCs, PCBs, zinc, cadmium, lead, mercury, cyanide, and iron at Level IV DQO using CLP Statement of Work according to the QAPP and FSP (Table 4-2).

Two surface water samples (SW15 and SW16) will be collected at the sediment sampling locations SD37 and SD36, respectively. Surface water samples SW18, SW19, and SW20 will be collected from three locations in the cattail marsh near the area where the groundwater treatment effluent will be discharged (Figure 4-5). These surface water sampling locations correspond with sediment sampling locations SD18, SD19, and SD35. Surface water sample SW17 will be collected from the ditch where the RI sample SD7C was collected (Figure 4-5). This sample location corresponds with sediment sample SD17. The samples will be collected and analyzed as described above, and the actual locations will be staked and labeled in the presence of U.S. EPA and/or IDEM representatives before sampling activities begin.

#### 4.4 WELL ABANDONMENT

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From: Pre-Design Work Plan

**TABLE 4-2**  
**Sample Type and Estimated Sample Numbers**  
**American Chemical Service, Inc. NPL Site**  
**Remedial Investigation**

<u>Sample<sup>1</sup></u> <u>Matrix</u>	<u>Lab<sup>1</sup></u>	<u>No. of</u> <u>Samples</u>	<u>Field<sup>1</sup></u> <u>Duplicates</u>	<u>Field<sup>1</sup></u> <u>Blanks</u>	<u>MS/MSD<sup>2</sup></u>	<u>Total No.</u> <u>Samples</u>	<u>Lab<sup>3</sup></u> <u>Parameters</u>	<u>Field</u> <u>Parameters</u>	<u>Lab</u> <u>Methods</u>
<u>UPPER AQUIFER INVESTIGATION</u>									
Groundwater	None	50	—	—	—	50	None	VOC Screening	Vendor
<u>DETECTION/COMPLIANCE MONITORING</u>									
Groundwater	IEA	19	2	2	1	24	Volatiles	pH, Cond, temp	CLP/SOW OLM01.9
		19	2	2	1	24	SVOCs		
		19	2	2	1	24	PCBs		
		19	2	2		23	Metals		
<u>RESIDENTIAL WELL SAMPLING</u>									
Groundwater (Low Level)	IEA	—	—	—	—	—	Volatiles	pH, Cond, temp	CLP/SOW 10/92
<u>WETLANDS SAMPLING</u>									
Surface Water	IEA	12	2	2	1	17	Volatiles	pH, Cond,	CLP/SOW OLM01.9
	IEA	12	2	2	1	17	Semi-Volatiles	temp, DO	
	IEA	12	2	2	—	16	Fe, Pb, Hg, Zn, Cd, CN		CLP/SOW ILM03.0
	IEA	12	2	2	1	17	PCBs		CLP/SOW OLM01.9
Soil/Sediments	IEA	22	3	—	2	27	VOCs		"
	IEA	22	3	—	2	27	SVOCs		"
	IEA	22	3	—	2	27	PCBs		"

IEA 22 3 - - 25 As, Cd, Cr, Cu, Hg, Pb, Zn

CLP/SOW  
ILM03.0

## General Notes:

1. Unless otherwise noted, samples will be considered low concentration, and will be packaged and shipped accordingly.
2. Lab Address and Telephone Number  
IEA Laboratories  
3000 Weston Parkway  
Cary, North Carolina 27513  
1-906-444-9919
3. A trip blank for VOC analysis will be included with each cooler shipped for aqueous (groundwater and surface water) samples. Trip blanks are not included in the total number of samples.
4. Field duplicates will be collected at a ratio of 1 field duplicate for each 10 investigative samples collected.
5. Field blanks will be collected at a ratio of 1 field blank for each 10 aqueous investigative samples collected.
6. EXTRA VOLUME REQUIREMENT: Extra volume is required for the MS/MSD quality control requirements for aqueous samples (triple volume for VOCs, double volume for SVOCs and PCBs). MS/MSD samples will be collected at a ratio of 1 MS/MSD for each 20 investigative samples. Samples collected for metals and indicators require DUP/MS quality control analyses, however, do not require additional volume to meet the specified QC.
7. Refer to Tables 3-1 through 3-4 for the organics, metals, and groundwater VOC screening parameters and their required detection limits.

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## Revised Text from the Field Sampling Plan

submitted to the U.S. EPA and IDEM within two weeks of data validation. The plan will consider the parameters of concern, direction of groundwater flow, aquifer of concern, and proximity of downgradient residential wells. The plan will present recommendations which may include retesting of selected monitoring wells for CLP VOCs, SVOCs, PCBs, or selected metals depending on the parameters of concern, additional groundwater investigations, or residential well sampling downgradient of the well where groundwater sample results indicate an exceedence of the Performance Standards.

If constituents are detected that are not listed in Appendix B of the SOW, they will be evaluated to determine if they are present at a concentration that in combination with the other detected constituents, would exceed a cumulative risk of  $1.3 \times 10^{-5}$  cancer risk or a cumulative non cancer risk or hazard index greater than unity as established in the ROD. If the detection of a non-Appendix B (SOW) constituent results in the exceedence of the ROD established levels, then an exceedence investigation plan will be submitted to the U.S. EPA and IDEM.

### Residential Well Monitoring

If sampling of residential wells is conducted, the samples will be analyzed for CLP Target VOC, SVOCs, PCBs or selected metals at DQO Level IV using the CLP Statement of Work (QAPP Table 1-1). Private well locations are shown in Figure 8. The results will be provided to the U.S. EPA and the IDEM, who will determine if residential well closures or groundwater use advisories are indicated. The U.S. EPA and IDEM will be responsible for providing the results to the well owners/users. The results will be provided to the U.S. EPA within two weeks after completion of data validation. If groundwater use advisories or residential well closures are determined to be required, the Respondents will implement the Groundwater Use Advisory/Well Closure Contingency Plan as discussed in Section 4.2 of the Pre-Design Work Plan.

### 3.3 EVALUATION OF THE WETLANDS

Surface water and soil sediment samples are proposed below, but the actual locations will be determined in the field with Agency oversight. Three soil/sediment sample locations are proposed to determine the presence or absence of impacts in the area north of the On-Site Containment Area (SD28, SD29, and SD30) (Figure 7). Other areas of potential runoff from the ACS plant site will also be sampled further including the vicinity of RI samples SD3 (SD21, SD22, and SD23), SD4 (SD20), SD11 (SD26 and SD27), SD12 (SD24 and SD25) and SD16 (SD31, SD33, and SD34). Proposed sample locations SD17 and SD32 will be collected near the RI sample SD7C. Three sediment samples (SD18, SD19, and SD35) will be collected at the proposed location of the groundwater treatment effluent discharge diffusers (Figure 7). Two proposed samples (SD36 and SD37) will be collected in the marsh area northwest of the proposed sample locations SD24 and SD25, due to groundwater contamination detected during the upper aquifer investigation. Proposed sample locations are based upon topography, surface water routing, and past sampling results. Sediment sample SD38 will be collected near the surface water seep sample found to contain benzene during the upper aquifer investigation. The

proposed sample locations SD17 through SD38, are shown on Figure 7. One sample will be collected from the top six inches of soil/sediment at each location and submitted for laboratory analysis.

Surface water samples will be collected from the drainage ditch that runs on the north and west of the wetlands and a tributary (Figure 7). One surface water sample will be collected at an upstream location SW14 and six in downstream locations (SW9, SW15, SW10, SW11, SW12, and SW13) and from pooled water within the wetlands (i.e., the tributary). The upstream sample location will provide an indication of the quality of the surface water entering the ditch from offsite. Sample SW9 will be collected to confirm the results of the surface water seep sample collected during the upper aquifer investigation. (Sediment sample SD38 will also be collected at this location). Other surface water samples from the ditch will provide an indication of the quality of the groundwater discharging to the wetlands, although such samples will also include potential effects from upstream influences and groundwater discharge from areas on the opposite side of the ditch from ACS. Samples will also be collected from standing water in the wetlands, if possible. Water samples of standing water in the wetlands would provide the best data to evaluate the potential impacts of groundwater discharge to the wetlands, and up to three such samples may be substituted for downstream ditch samples as conditions permit. Surface water and sediment samples will be collected downstream to upstream to minimize disturbance to samples. Sampling SOPs are included in Appendix C of the QAPP. In the event of weather conditions which may affect the ability to collect surface water samples (i.e., wetlands are dry due to drought condition, surface water is frozen due to extreme cold, etc.), the surface water sampling will not be performed until weather conditions are appropriate for sampling.

Two surface water samples (SW15 and SW16) will be collected at the sediment sampling locations SD37 and SD36, respectively. Surface water samples SW18, SW19, and SW20 will be collected from three locations in the cattail marsh near the area where the groundwater treatment effluent will be discharged. These surface water sampling locations correspond with sediment sampling locations SD18, SD19, and SD35. Surface water sample SW17 will be collected from the ditch where the RI sample SD7C was collected. This sample location corresponds with sediment sample SD17. The samples will be collected and analyzed as described above, and the actual locations will be staked and labeled in the presence of U.S. EPA and/or IDEM representatives before sampling activities begin.

### 3.4 WELL ABANDONMENT

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From: QAPP

**TABLE 1-1**  
**Sample Type and Estimated Sample Numbers**  
**American Chemical Service, Inc. NPL Site**  
**Remedial Investigation**

<u>Sample<sup>1</sup></u> <u>Matrix</u>	<u>Lab<sup>1</sup></u>	<u>No. of<sup>2</sup></u> <u>Samples</u>	<u>Field<sup>4</sup></u> <u>Duplicates</u>	<u>Field<sup>4</sup></u> <u>Blanks</u>	<u>MS/MSD<sup>4</sup></u>	<u>Total No.</u> <u>Samples</u>	<u>Lab<sup>7</sup></u> <u>Parameters</u>	<u>Field</u> <u>Parameters</u>	<u>Lab</u> <u>Methods</u>
<u>UPPER AQUIFER INVESTIGATION</u>									
Groundwater	None	50	—	—	—	50	None	VOC Screening	Vendor
<u>DETECTION/COMPLIANCE MONITORING</u>									
Groundwater	IEA	19	2	2	1	24	Volatiles	pH, Cond, temp	CLP/SOW OLM01.9
		19	2	2	1	24	SVOCs		
		19	2	2	1	24	PCBs		
		19	2	2		23	Metals		
<u>RESIDENTIAL WELL SAMPLING</u>									
Groundwater (Low Level)	IEA	—	—	—	—	—	Volatiles	pH, Cond, temp	CLP/SOW 10/92
<u>WETLANDS SAMPLING</u>									
Surface Water	IEA	12	2	2	1	17	Volatiles	pH, Cond,	CLP/SOW OLM01.9
	IEA	12	2	2	1	17	Semi-Volatiles	temp, DO	"
	IEA	12	2	2	—	16	Fe, Pb, Hg, Zn, Cd, CN		CLP/SOW ILM03.0
	IEA	12	2	2	1	17	PCBs		CLP/SOW OLM01.9
Soil/Sediments	IEA	22	3	—	—	27	VOCs		"
	IEA	22	3	—	—	27	SVOCs		"
	IEA	22	3	—	—	27	PCBs		"
	IEA	22	3	—	—	25	As, Cd, Cr, Cu, Hg, Pb, Zn		CLP/SOW ILM03.0

## General Notes:

1. Unless otherwise noted, samples will be considered low concentration, and will be packaged and shipped accordingly.
2. Lab Address and Telephone Number  
IEA Laboratories  
3000 Weston Parkway  
Cary, North Carolina 27513  
1-800-444-9919
3. A trip blank for VCC analysis will be included with each cooler shipped for aqueous (groundwater and surface water) samples. Trip blanks are not included in the total number of samples.
4. Field duplicates will be collected at a ratio of 1 field duplicate for each 10 investigative samples collected.
5. Field blanks will be collected at a ratio of 1 field blank for each 10 aqueous investigative samples collected.
6. **EXTRA VOLUME REQUIREMENT:** Extra volume is required for the MS/MSD quality control requirements for aqueous samples (triple volume for VOCs double volume for SVOCs and PCBs.). MS/MSD samples will be collected at a ratio of 1 MS/MSD for each 20 investigative samples. Samples collected for metals and indicators require DUP/MS quality control analyses, however, do not require additional volume to meet the specified QC.
7. Refer to Tables 3-1 through 3-4 for the organics, metals, and groundwater VOC screening parameters and their required detection limits.

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